APM BODY OF KNOWLEDGE

7th edition

THE CHARTERED BODY FOR THE
PROJECT PROFESSION

Contents

Foreword

The Association for Project Management (APM) was awarded its Royal Charter in 2017 and has quickly established itself as the chartered body for project professionals in the UK and overseas. In support of chartered, the *APM Body of Knowledge* (APMBoK) has taken on greater significance, providing an authoritative statement on project management and the foundation on which the profession is built.

The APMBoK represents our core beliefs – an ethos – upon which we believe projects can not only be delivered successfully, but also to the benefit of society, the economy and the environment.

The seventh edition is the foundation for the successful delivery of projects, programmes and portfolios across all sectors and industries. It forms the basis for qualification syllabuses and a common language which strengthens the concept of a progressive career path for project professionals. As a taxonomy, it acts as a common framework for debate allowing our profession to develop as the demands on us change and grow.

For some, the APMBoK is a starting point providing knowledge and understanding of key concepts, for more experienced professionals it serves as a valuable reference and a method to share the language of project management more widely among teams and key stakeholders.

The APMBoK will play a key role as we evolve as a chartered profession. It reflects emerging and established ideas – a common bond across all project types. From governance and organisational cultures to the realisation of benefits and concepts of control and agility, the book weaves a thoughtful narrative that brings together all these elements.

The launch of the seventh edition provides an opportunity to take stock and reaffirm our position both in the profession and consider our role in society. We ask you not only to engage with it, but to challenge it, expand on it, bring your experience, knowledge and ideas as we support the profession in realising our long-term vision of 'a world in which all projects succeed, and project management is a life skill for all'.

John McGlynn
APM Chair

Acknowledgements

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Introduction

A body of knowledge is a set of concepts, terms and activities that make up a professional domain. The *Association for Project Management Body of Knowledge* (APMBoK) has expanded over time to reflect the role of project-based working in achieving objectives for change at strategic and operational levels, involving the development of new or amended products, processes or other capabilities and across private, public and third sectors.

In this seventh edition, we use the term 'project-based working' (or the 'management of projects') to refer collectively to projects, programmes and portfolios, and we deal with aspects of projects, programmes and portfolios across the text, although acknowledging that not all aspects of project-based working apply to projects, programmes and portfolios equally. We have used the term project professional to refer to anyone working in a defined role within a project, programme or portfolio.

A central tenet of project-based work is the need to balance multiple competing objectives and challenges within a defined set of time, cost and quality constraints in order to achieve beneficial change. This makes the concept of the triple constraint or 'iron triangle' as relevant today as when it was first introduced. However, contemporary management by projects is a more developed field than ever before and this gives the organisational leader a wider range of options about how to organise and govern a particular change initiative.

In this version of the APMBoK, we explicitly acknowledge the ability to choose between multiple forms of life cycle – from one designed to guide the management of deliberate change in a linear fashion to one designed to guide the shaping of emergent change in an incremental, iterative or evolutionary way. Avoiding any simplification of this matter by referring to 'waterfall vs agile', we outline the choices that leaders can make and acknowledge the reality that many project-based endeavours now adopt some sort of hybrid linear/iterative life cycle approach.

The APMBoK is written for anyone interested in understanding more about achieving beneficial change through project-based working, however the structure of this *APM Body of Knowledge* is designed so that each chapter is written with a primary audience in mind.

Chapter 1 Setting Up for Success: Is written primarily for those leaders within organisations who have decisions to make about the role of projects, programmes and portfolios in implementing strategy. Leaders may be in the 'client' or investing organisation, or in a supplier organisation that exists to deliver project-based work for clients. The ideas in this chapter apply in both scenarios.

Chapter 2 Preparing for Change: Is written primarily for those people charged with leading any project, programme or portfolio, of any size and complexity. It addresses early life cycle shaping and late life cycle transition into use for projects, programmes and portfolios, as well as matters of assurance, learning and maturity.

Chapter 3 People and Behaviours: Is written for anyone involved in projects, programmes and portfolios. Influencing and engaging stakeholders, forming, building and leading teams, and the generic skills and responsibilities of being a project professional are addressed with the objective of making it clear that all project-based work relies fundamentally on the ability of people to work together.

Chapter 4 Planning and Managing Deployment: Is written primarily for those involved in the end-to-end process of delivering a project, whether a standalone project or one that is part of a programme and/or portfolio, and regardless of the life cycle approach taken. Although the professional domain has expanded, the detailed matters associated with defining outputs, integrated planning and controlling deployment remain.

It is tempting and desirable in a body of knowledge to be definitive about terminology used, and, indeed, the Glossary is provided for this purpose. However, project-based working, as experienced by practitioners, is increasingly performed in a context that is volatile, uncertain, complex and ambiguous. As a result, we feel strongly that it does not serve the profession to oversimplify important aspects of project-based working and, in some cases, we use terms interchangeably, for example:

- Business-as-usual – Operations – Steady state

- Client – Owner – Investing organisation

- Outputs – Deliverables – Products

Unlike other bodies of knowledge or guides to the management of projects, APM chooses not to describe 'how-to' in terms of methods, tools and techniques in the APMBoK, but rather uses it as a foundational knowledge resource, and a pointer to other sources of information.

Within each of the four chapters, we have three distinct sections and each section contains discrete topics (80 in all). Within each topic, there is a set of carefully curated recommended reading that professionals can use to expand their knowledge and practice. Guides written by APM Specific Interest Groups (SIGs) are included in these recommended reading sections alongside other suggested books and papers.

The *APM Body of Knowledge 7th edition* is the first version of these editions to be published since the award of chartered status. As a foundational resource, written by the profession for the profession, we hope you find the content informative and useful in guiding your endeavours to deliver beneficial change through the management of projects, programmes and portfolios.

1 **Setting up for success**

This chapter is written primarily for those leaders within organisations who have decisions to make about the role of projects, programmes and portfolios in implementing strategy. We assume that in most situations, there is a choice to be made about how best to structure project-based work in order to achieve unique and specific objectives for change.

The main focus of the chapter is on the available options and the strategic decisions required to underpin and enable beneficial organisational change.

Beneficial change results from the strategic intent, ambitions and needs of an organisation. Organisations operate in increasingly uncertain contexts. They identify strategic priorities and set out to bring about meaningful and beneficial change that is described and realised through a set of benefits that justify the investment. The purpose of the investment therefore is to deliver valuable returns. The investing organisation can use strategic portfolios and programmes, incorporating change activities with business-as-usual, and a variety of project mechanisms to structure and pace the investment.

The required speed of deployment, existing knowledge about the nature of the work that needs to be accomplished and the nature of the potential solution, all play a part in determining the most suitable approach to create and embed the new capabilities, systems and structures. The choice of approach determines the life cycle that will be used to realise and deploy the change. Recognising the strategic nature of change is important in fostering a longer-term approach that is cognisant of the need to adopt the proposed change and realise the intended benefits. An extended perspective as promoted throughout this work is also critical to discharging the responsibility to consider decommissioning and disposal alongside the whole-life costs of assets, and the long-term environmental and social implications of our actions.

Choices and preferences need to be scrutinised and examined. Governance and oversight mechanisms are established to deal with procedural and cultural aspects that need to be in place to improve the effectiveness of the implementation of proposed change initiatives and to underpin the realisation of the strategic investments. Projects, programmes and portfolios need to be compatible with the overarching strategy of the organisation and with the day-to-day operation charged with realising the benefits. A structured approach to change management ensures that beneficial changes are embedded within the organisation's operational approach and closely aligned in order to ensure its long-term successful and impactful realisation.

The chapter is composed of three parts:

1.1   Implementing strategy

1.2   Life cycle options and choices

1.3   Establishing governance and oversight

1.1 **Implementing strategy**

Organisations operate in a dynamic context, full of uncertainty, novelty and turbulence. Projects, programmes and portfolios are introduced in order to enhance performance, bring about change and enable organisations to adapt, improve and grow. Project-work therefore represents intentional investment in development, enhancement and improvement.

The need for investment emerges from the aspirational plans and an overarching purpose that transpire from the strategic intent of an organisation. Project-work encompasses strategic investments that enable assets, structures, systems, activities and capabilities to be formed, maintained or enhanced so that the organisational plans and ambitions can be realised. In the public sector, this strategic intent may be discussed in terms of policy and policy implementation.

Organisational change is introduced through projects, programmes and portfolios in order to deliver business value. The business value is accrued through the realisation of benefits that result from project-work. Benefits are part of ensuring that investments are made to deliver value to the organisation. This normally applies even when the project is being done by a supplier or contracting organisation, or if the work is needed to maintain current capability or in order to conform to new regulations or directives so that smooth business operations can be allowed to proceed.

The successful deployment of change, the support of new behaviours and the utilisation of new capability, resulting in the realisation of benefits, involves engaging with, promoting and working with diverse communities and groups. To ensure that value is created and sustained, organisations need to consider and address the full investment life cycle ensuring that forecasted benefits materialise.

Delivering strategy is enabled through the use of projects, programmes and portfolios. Portfolios structure investments in line with strategic objectives, whilst balancing, aligning and scrutinising capacity and resources. Programmes combine business-as-usual with projects and steady state activity dictated by strategic priorities. Projects are transient endeavours that bring about change and achieve planned objectives. Together, they combine to deliver the beneficial change required to implement, enable and satisfy the strategic intent of the organisation.

This section will be of particular interest to senior leaders and managers in organisations and to project professionals as it addresses:

1.1.1 *Organisational environment*: Organisations in context

1.1.2 *Strategic implementation*: Making strategy happen

1.1.3 *Organisational change*: Enabling beneficial change

1.1.4 *Benefits to the organisation*: Putting it all together

1.1.5 *Structural choices*: Projects, programmes and portfolios

1.2 **Life cycle options and choices**

There are many different ways of structuring and organising project-work. One of the more important shaping decisions revolves around the choice of an approach and the associated life cycle that matches that philosophy. This section is concerned with clarifying the different options and highlighting their implications.

When organisations decide to deliver beneficial change through project-work, they have a diversity of potential approaches, ranging from highly predictive methods that assume that knowledge regarding the context is well established and stable, all the way to highly adaptive situations, replete with volatility, uncertainty, ambiguity and turbulence that require more dynamic ways of engaging with the environment and continuously involving interested stakeholders. The choice of approach will determine the way projects, programmes and portfolios operate and play a vital part in determining their success. Each life cycle also requires different management capabilities, team skills, knowledge management approaches and governance style.

Professionals are expected to make informed choices and select approaches that match their specific context. This section aims to introduce the richness and diversity of possibilities available to decision-makers. It begins by introducing some of the main philosophical positions and key perspectives, before delving into the different types of life cycles on offer and recognising that given the many compromises, managers unsurprisingly opt for pragmatic hybrid choices, combining the best features from different arrangements.

Project-work is often said to emphasise a short-term perspective through an intense focus on implementation. However, projects are increasingly called upon to deliver benefits, address sustainability considerations and transform organisations. Such expectations imply a need to extend the traditional focus to address more strategic aspects and global concerns. This section offers a glimpse of the fundamental decisions and tradeoffs available to decision-makers who need to understand the diversity of options they increasingly find at their disposal.

This section will be of particular interest to senior leaders in organisations as well as to managers and project professionals as it addresses:

1.2.1   *Life cycle philosophy*: Making sense of life cycles

1.2.2   *Linear life cycles*: Following a deliberate sequence

1.2.3   *Iterative life cycles*: Filling in the detail

1.2.4   *Hybrid life cycles*: Finding the right balance

1.2.5   *Extended life cycles*: Bringing in the benefits

1.2.6   *Product life cycles*: Considering usage, evolution and disposal

1.2.1 **Life cycle philosophy**

Making sense of life cycles

Life cycles are fundamental to the management of project-work: Different approaches can be utilised for deployment, depending on the desired outputs, benefits and outcomes and the expected uncertainty, novelty and risk appetite. The choice of deployment approach will play a key part in selecting the most suitable form of life cycle, and thereby determine the stages involved in organising project-work and indicate how they are interrelated and sequenced.

A life cycle is a framework comprising a series of distinct high-level stages required to transform an idea or concept into reality in an orderly and efficient manner. It offers a systematic and organised way to undertake project-based work and can be viewed as the structure underpinning deployment.

The life cycle acts as an important management tool, focusing on the allocation of resources, the integration of activities, the availability of key individuals, the support of timely decision-making, the mitigation of risk and the provision of control and governance mechanisms matching the life cycle structure. Consequently, it is important that sponsors and executives understand the characteristics and specific features of the selected approach.

Approaches to deployment range between highly predictive and highly adaptive settings and can be depicted along a spectrum (Figure 1.2.1). The choice between predictive and adaptive philosophies is largely influenced by the availability of knowledge. More predictive approaches tend to rely on knowledge known at the start, allowing work to proceed in a sequential manner, whilst adaptive contexts imply that new knowledge is created as the work progresses, which is then used to inform and guide the remaining effort. Adaptive approaches allow more key stakeholders to contribute and shape the development process.

Specific philosophies for deployment include:

- *Linear*: Where the initiative progresses through a sequential series of steps. In a programme, each step would provide only partial capability until the final desired state is reached. This is suitable for stable, low-risk environments.

- *Incremental*: Where the target state is achieved through a staged series of smaller steps. This can be used to deliver 'quick wins', conserve scarce resources or deliver early benefits. It fits with the idea of delivering tranches in programmes.

- *Iterative*: Where prototypes, timeboxes or parallel activities are utilised to acquire new insights, obtain feedback or explore high-risk options. The scope of this activity depends on the level of uncertainty and the organisational risk appetite. The duration may extend throughout deployment.

- *Evolutionary*: Where deployment entails a number of major transitions, each based on user feedback from the preceding transition. This may be applied in innovative or time-critical entry to new markets.

There is no universal best approach. Project professionals select the most suitable arrangement for their context, most often combining features from any of the above into a hybrid life cycle (see 1.2.4).
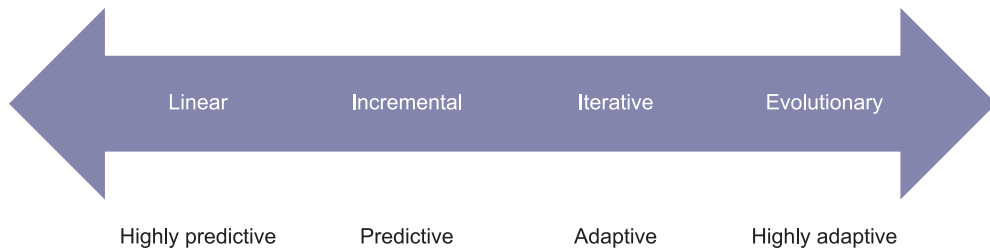
Figure 1.2.1 **Selecting a life cycle**

Recommended reading

■ *The UK's National Standard BS 6079 Project Management – Principles and Guidance for the Management of Projects* (2019) considers the role of life cycles in the management of projects and offers guidance on the components of a project life cycle.

■ *APM Introduction to Programme Management* (2016) offers explanations of the various life cycle philosophies in the context of managing programmes and change efforts, addressing some of the major implications of making life cycle choices. It also covers governance issues and provides detailed guidelines related to the major stages included in the programme life cycle.

■ *Managing Knowledge in Project Environments* (2019) builds from the assumption that the choice of life cycle is based on what is known. It explains the role of knowledge and uncertainty in selecting different life cycles and approaches. The book offers a knowledge management perspective on project-work, paying particular attention to the implications of selecting specific life cycles and approaches.

Full references for Section 1.2

1.2.1

APM Programme Management Specific Interest Group (2016) *APM Introduction to Programme Management*, 2nd edition. Princes Risborough: Association for Project Management.

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1.2.4

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2 **Preparing for change**

This chapter is written primarily for those people charged with leading any project, programme or portfolio, of any size or complexity.

The focus of the chapter is preparing for change, in particular to consider in advance the practices that are important in early life cycle shaping, mid-life cycle assurance, learning and maturity, and late life cycle transition into use – whether leading a standalone project, or a programme or portfolio.

Translating strategic priorities into a justified business case for an investment in planned change leads to decisions about how to shape the particular project, programme or portfolio. Focusing on stakeholder needs and the organisation's appetite for risk, early decisions can be made to inform detailed planning. In particular, procurement strategy and considerations of operational adjustments that may be needed during deployment are important topics to consider early as they will influence the scope of subsequent work.

There are some aspects of project-based working that apply in all circumstances and inform the abilty of an organisation to improve their capability to deliver change successfully – project by project. All teams involved in project-based working need to make informed decisions and to provide assurance to different stakeholders. Effective project-based organisations are proficient in creating and using knowledge to continuously improve their practices and enhance their maturity. In organisations where the ability to deliver beneficial change reliably and at scale is important, building effective within-project and cross-project support through a project, programme or portfolio management office (PMO) is critical to success.

Ultimately, the organisational return on investment from project-based working is accomplished when the particular outputs of projects are transformed into organisational outcomes of benefit to stakeholders. The approach adopted for transition of project-based outcomes into use in business-as-usual is closely linked to the chosen life cycle, so many variants are possible. In all cases, the ability of a temporary change team to influence the recipients of change in the permanent organisation so that new processes, products, systems or ways of working are adopted, is paramount. And because projects and programmes are transient endeavours, the managed closure of the work – whether as planned or earlier – is an explicit and crucial part of the work to be done.

The chapter is composed of three parts:

2.1   Shaping the early life cycle

2.2   Assurance, learning and maturity

2.3   Transition into use

2.2 **Assurance, learning and maturity**

There are some aspects of project-based working that apply in all circumstances and inform the abilty of an organisation to improve their capability to deliver beneficial change successfully.

All teams involved in project-based working need to make informed decisions and to provide assurance to different stakeholders. Whatever life cycle approach is chosen, a managed progression through that life cycle is needed. The use of decision gates (alternatively called 'stage gates') is a critical part of governance of project-based working, where the sponsor and wider governance body make decisions about whether to continue the investment in a project, programme or portfolio. The ability to provide assurance to support such decisions relies on having reliable, traceable information and other evidence on which to base judgements.

Effective project-based organisations are proficient in creating and using knowledge to continuously improve their practices and maturity. In the past, the idea of 'lessons learned' in project-based working was popular but all too many organisations report that although lessons may be documented, they are not reliably learned and practices adjusted to capitalise on the learning. Learning – the creation and use of knowledge – is a people-based practice. One effective way of people coming together to share knowledge, challenge perceptions and create new knowledge is through a community of practice. Learning also enables maturity of practice in project-based working and some organisations choose to benchmark their maturity, or use a maturity model, as the basis for an assurance review.

In organisations where the ability to deliver beneficial change reliably and at scale is import-ant, building effective within-project and cross-project support through a project, programme or portfolio management office (PMO) is critical to success. PMOs come in different shapes and sizes, and serve different purposes. They are increasingly seen as an efficient way to provide leading thinking and practice across a wide range of project-based work.

This section will be of particular interest to project, programme and portfolio leaders thinking about how to manage performance within the context of the organisational capabilities and maturity. It addresses:

2.2.1   *The PMO*: Support structures for projects, programmes and portfolios

2.2.2   *Decision gates*: Managed progression through the life cycle

2.2.3   *Information management*: Capturing evidence to support buy-in, learning and assur-ance

2.2.4   *Audits and assurance*: Ensuring decisions are based on evidence

2.2.5   *Knowledge management*: Connecting people to create insight and use knowledge to improve outcomes

2.2.6   *Communities of practice*: Investing in people and knowledge

2.2.7   *Maturity of practice*: Investing in the predictability of delivering results

2.2.1 **The PMO**

Support structures for projects, programmes and portfolios

Many different names are given to the part of the organisational structure that provides support for projects, programmes and portfolios but there is a growing consensus about the term PMO. The PMO may be a project management office, programme management office or portfolio management office, depending on what is being supported.

Whether projects, programmes or portfolios are being supported, a PMO brings three main benefits to any project-based organisation: deployment support, process improvement and resource flexibility.

Administrative work, for example, diary and travel arrangements for the team, and secretariat services for governance, needs to be resourced on all projects, programmes and portfolios, and this is often offered by a PMO. In addition, PMOs can provide access to services that might never be justified for a single project, for example:

- *Controls and reporting*: Collecting, analysing and presenting progress information and managing interdependencies.

- *Assurance*: Audits, health checks and reviews to support decision gates and change control.

- *Centre of excellence*: Improving processes, tools and techniques; embedding through training and support; and measuring capabilities to review progress and target higher levels of maturity.

- *Specialist support*: Provision of specialist skills such as risk; quality, planning or finance resources as role models to other project professionals.

- *Information management*: Document management and access to information, tools and services.

There are three typical ways that PMOs are organised and funded (Figure 2.2.1):

- *Embedded PMO*: Where the majority of PMO functions are delivered under the control of the project/programme/portfolio manager, with only organisation-wide elements such as processes defined at a higher level. Effective on large projects that need lots of support and can justify the investment.

- *Central PMO*: Where the majority of PMO functions sit outside of the teams, providing a service to multiple projects. Effective when there is a portfolio of small projects, where flexibility is valued more than management control.

- *Hub-and-spoke PMO*: A hybrid form with a central enterprise or portfolio PMO linked to satellite PMOs within individual projects and/or programmes. Effective when there are clear roles and responsibilities between managers and the PMO to ensure processes and information are managed effectively.
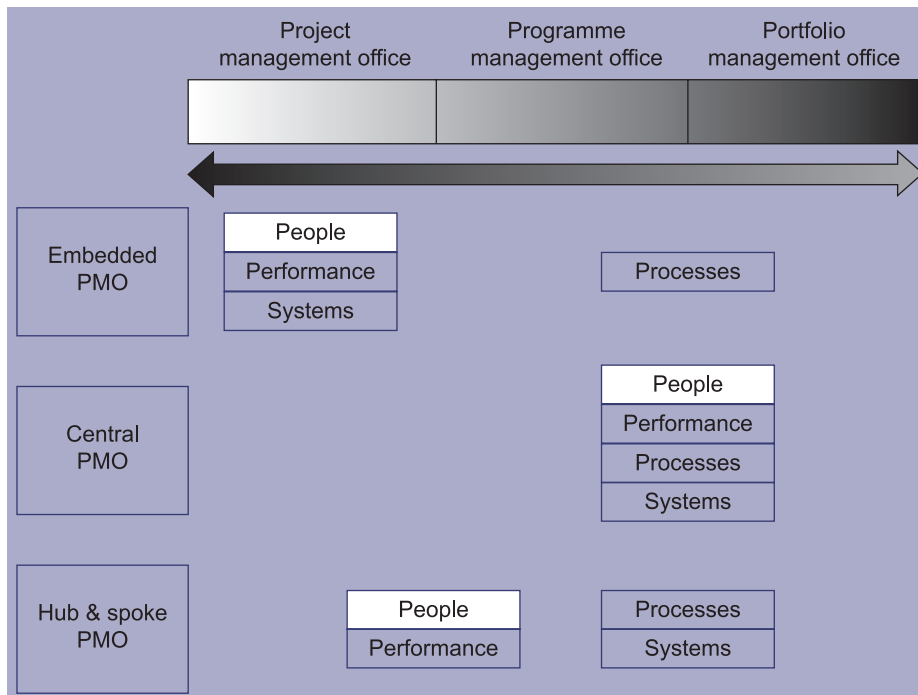
Figure 2.2.1 **Different forms of PMO**

Depending on the type of PMO that is adopted, different specialist skills are needed in the PMO team, however there are generic skills that would be useful to have in all PMOs in order to deliver value. These include data analysis skills to support insightful reporting; facilitation skills to support creativity, problem-solving and collaboration; training and coaching skills to help teams develop; and auditing skills to confirm compliance or to challenge and thereby drive improvement.

Recommended reading

- *The Complete Project Management Office Handbook* (2013) is a detailed handbook offering insights and practical advice on how to utilise PMOs to enable the three essential aspects of improved oversight, control and support. The author views the PMO as a business integrator, capable of influencing both project and business outcomes.

- *Leading Successful PMOs: How to Build the Best Project Management Office for Your Business* (2011) outlines the basics of setting up a PMO and clearly explains how to ensure it will do exactly what you need it to do – the right things, in the right way, in the right order, with the right team.

- *The Strategic Project Office* (2010) leverages research to reinforce the use of a Strategic PMO as a 'strategy management centre' to align corporate strategy with the project portfolio. It is a 'how-to' guide, focused on getting the benefit from a PMO at portfolio level.

3 People and behaviours

This chapter is written for anyone involved in projects, programmes and portfolios. Engaging and influencing stakeholders, forming, building and leading teams, and the generic skills and responsibilities of being a project professional are addressed with the objective of making it clear that all project-based work relies fundamentally on the ability of people to work together.

Stakeholders, those individuals or groups who have an interest or role in the project, programme or portfolio, or are impacted by it, cannot by definition be 'managed'. Rather, depending on their stake, and the role that ideally they will play, the people involved in the work, from sponsor to team member, are part of the effort to keep the stakeholder appropriately engaged and influenced to do the right things. This is not easy work and benefits from a facilitative approach rather than assuming that 'command-and-control' approaches will be effective. Conflicts may well arise and the resolution of these, or containment if resolution is not possible, is essential for all involved parties.

Groups of people with a common aim are called a 'team' on the assumption that the people will not only cooperate with each other but also collaborate to innovate and perform. Effective project-based working relies on effective teamwork, often carried out in a context where teams are temporary, multidisciplinary and, occasionally, also geographically dispersed. Leading a group of people so they can become a high-performing team is skilled work and some would argue that it is the most important skill that a project professional needs to develop.

Beyond working with stakeholders and teams, there are other aspects of any role involved in project-based working (from sponsor to team member) that is about managing self and working in a professional manner. There are some generic skills that apply to everyone, including effective communication and the ability to manage ones' own time and workload. Project professionals also operate within frameworks designed to uphold the law and professional standards. Doing this ethically and with a focus on continual professional development is a vital part of working as a professional in any field.

This chapter is composed of three parts:

Section 3.1   Engaging stakeholders

Section 3.2   Leading teams

Section 3.3   Working professionally

3.1 **Engaging stakeholders**

There is wide agreement that understanding stakeholders – those influential, interested individuals and groups who are affected by projects, programmes or portfolios – is critical work. However, over the past decades, 'stakeholder management' has become a frequently used term. The term implies that stakeholder behaviours and actions can, indeed, be managed, i.e. predicted, planned and controlled.

This section challenges the position that stakeholders can be 'managed' and suggests the need to think instead about how we understand, engage and influence stakeholders. Identifying and understanding stakeholders is the starting point, but going beyond initial assumptions or generalisations is key, as is understanding stakeholder relationships with each other, as well as with the project, programme or portfolio.

Deeper understanding, including of organisational power and politics, is the basis for effective engagement – an opportunity to build enough of a relationship with stakeholders to influence their perspectives and behaviour.

Influencing stakeholders, usually without any position power, is ongoing work for the project professional. This work is often aided by adopting a facilitative approach. Sometimes, conflict needs to be resolved, or at least managed in order to balance the needs of the project with the needs and expectations of the people involved.

This section, written for anyone involved in project-based working, addresses the following topics:

3.1.1   *Stakeholders*: Understanding who needs to be engaged and influenced

3.1.2   *Social context*: Navigating sociopolitical complexity

3.1.3   *Engagement and influence*: Working with people to build support to achieve intended outcomes

3.1.4   *Facilitation*: Making it easy to collaborate and solve problems

3.1.5   *Conflict resolution*: Facilitating win-win solutions where possible.

3.1.3 **Engagement and influence**

Working with people to build support to achieve intended outcomes

Project professionals interact with a range of individuals, teams and organisations, whose support they need to achieve desired outcomes. In many cases, the project professional will not have the formal authority to direct staff and stakeholders who have an interest and who are influential to the project's success. As a result, successful accomplishment of objectives is reliant on the ability to engage and influence stakeholders without position power (Figure 3.1.3).

Effective engagement improves the chance of achieving objectives by having a positive influence on stakeholders' behaviours to:

■ use and sustain positive interest; or

■ minimise or remove negative interest.

Effective engagement requires the project professional to focus on understanding stakeholder perspectives and to address these in order to achieve the intended outcomes. Putting in effort to explore stakeholder points of view has the dual benefit of building understanding of the issues and building relationships.

Influence relies on relationships being built and maintained. Relationships depend on factors such as respect, shared values and trust. To establish the best possible conditions to be influential, project professionals need:

■ *Contextual awareness*: The ability to select the appropriate time, place and contributors.

■ *Cultural awareness*: Understanding the background and values of both the organisation and the people involved (see 3.2.5 and 3.2.6).

■ *Communication skills*: Flexibility of medium used and clarity in message (see 3.3.1).

■ *Conflict resolution skills*: The ability to challenge in a neutral and fair manner, persuade and find mutually acceptable positions (see 3.1.5).

Influence can also be achieved through an understanding of relationships between stakeholders and the politics that shapes those alliances. Stakeholders who support the project can be used to influence stakeholders who do not.

Influence can be attempted formally and/or overtly, through direct communication and action, or may be achieved through more informal and/or covert and subtle behaviour and action, for example by including an influential but sceptical stakeholder in governance and decision-making activities.

Engagement and influence of stakeholders must be coordinated across projects within programmes and portfolios. A particular stakeholder may only be concerned with one project within a programme, but the influence of the stakeholder on that project may have programme consequences. Where a stakeholder is affected by multiple projects, the programme manager will ensure that engagement and influence of that stakeholder is coordinated across the
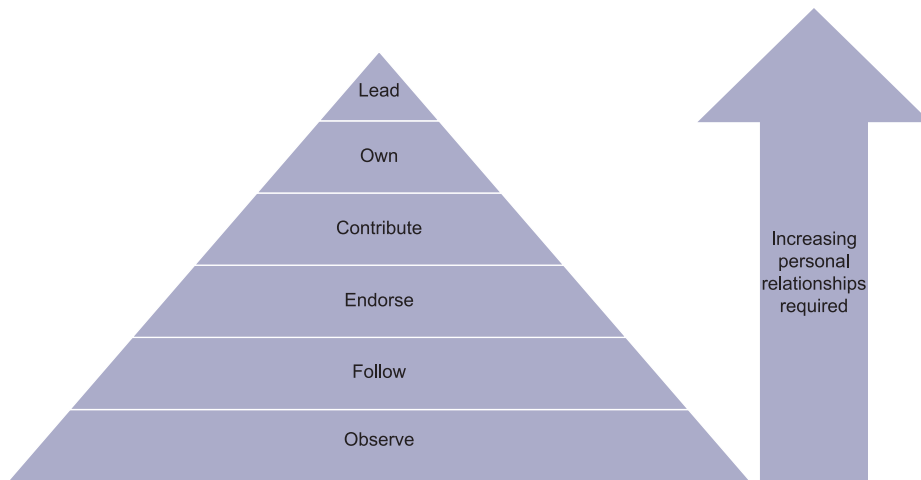
Figure 3.1.3 **Matching engagement approach to stakeholder need**

multiple projects. Stakeholder influence at portfolio level typically requires the involvement and support of senior leaders.

The skills required by the project professional to engage and influence are many and varied. A facilitative approach is often useful to demonstrate commitment to attending to the stated needs and inferred expectations of stakeholders (see 3.1.4).

Recommended reading

- The APM People Specific Interest Group guide *The Lens Collective* (2010) provides a suite of tools that encourages project managers to reflect and consider alternative courses of behaviour. It prompts individuals to expand their understanding and analysis of project challenges or contexts, provoke dialogue, promote creative problem-solving and enable collaborative teamwork.

- *Practical People Engagement: Leading Change through the Power of Relationships* (2013) provides a rich source of practices and techniques that help the reader get better results from the change they are trying to lead. The book distils the principles of people engagement from the observation of high performers. Different forms of engagement are explored, including those that are effective in supporting agile approaches.

- *Influencing: Skills and Techniques for Business Success* (2006) describes how people can review and reflect pon how they perform as an influencer. This book helps the reader address their own discussion and review skills, influencing styles, approaches and techniques.

4 Planning and managing deployment

This chapter is written primarily for those involved in the end-to-end process of delivering a project, whether a standalone project or one that is part of a programme and/or portfolio, and regardless of the life cycle approach taken.

Although the professional domain has expanded, as described in many parts of the earlier chapters, the detailed matters associated with defining outputs, integrated planning and controlling deployment remain. However, the context for this work is changing, with pressure to respond to an increasing need for agility and flexibility. As a result, many projects adopt iterative rather than linear approaches for at least some part of the life cycle.

Moving from high-level expressions of stakeholder vision or need through to a detailed statement of work for the chosen solution involves a number of steps of refinement: exploring objectives; detailed requirements; success criteria; measurable benefits; best value options; scope definition and acceptance criteria for each element of that scope. This work builds a firm foundation for detailed planning.

Taking forward the definition of outputs into detailed planning requires a focus on multiple areas, and the integration of those areas into the baseline project management plan. Depending on particular project objectives and the life cycle chosen, different approaches to planning time, resources and cost, in the context of risk can be adopted.

Controlling deployment requires a detailed focus on monitoring and reporting as well as a commitment to manage risk, issues and change/variations in a disciplined way. The imperative to provide audit trails for assurance, and the opportunity for individual team members and the wider organisations involved to reflect, learn and improve, is an organisational reality for all who work in a competitive environment.

The chapter is composed of three parts:

4.1   Defining outputs

4.2   Integrated planning

4.3   Controlling deployment

4.1 **Defining outputs**

Moving from high-level expressions of stakeholder vision or need through to a detailed statement of work for the chosen solution involves a number of steps of refinement exploring success criteria, measurable benefits, detailed objectives and requirements, best value options, scope definition and acceptance criteria for each element of that scope. This work builds a firm foundation for detailed planning.

The linear progression from high-level expressions of need and benefit in an early business case through to the specification of detailed requirements, scope and acceptance criteria is well understood. For many projects, this remains a value-creating process, especially for large-scale, highly technical projects, where rework is expensive and does not justify an iterative approach.

The emergence and growing popularity of iterative approaches requires us to think about defining outputs in a different, more adaptive way. The danger, however, is to assume that the approaches designed to build in agility and flexibility do not require the discipline to define some things clearly, for example benefits that justify the investment or the acceptance criteria for deliverables. Understanding the different options and maintaining a balance are always important.

This section, written for all people working to plan and deliver either standalone projects or projects within programmes and portfolios, addresses the following topics:

4.1.1   *Success and benefits*: Understanding what success means for different stakeholders

4.1.2   *Objectives and requirements*: Comprehensive and measurable requirements are critical to project success

4.1.3   *Options and solutions*: Exploring multiple options until a preferred solution is identified

4.1.4   *Scope definition*: The translation of requirements into outputs for the chosen solution

4.1.5   *Quality planning*: Ensuring outputs are delivered in accordance with requirements

4.2.7 **Resource optimisation**

Managing scope, quality, time and cost in a constrained system

Project professionals appreciate that projects reside within larger organisational structures. In a standalone project, the sponsor defines the relative priorities of scope, quality, time, cost and benefits realisation. Where projects are within programmes and/or portfolios, further constraints are imposed.

As a result, project professionals are not able to make decisions alone that would result in:

■ changes to scope;

■ different acceptance criteria (quality) of outputs;

■ delivering outputs, outcomes and benefits later than promised.

Instead, this requires them to use scarce resources optimally. Beyond the critical chain approach (see 4.2.6), there are two basic options available to the project professional: resource levelling and resource smoothing.

Resource levelling answers the question: 'With the resources available, when will the work be finished?' Project professionals use levelling when projects are dependent upon limited resources, for example test pilots or specialist testing equipment.

Using a linear life cycle, fitting the scope of work into any resource cap and holding the quality results in delay to planned completion dates of activities and an overall increased duration. Projects using an iterative life cycle ensure requirements are prioritised and implemented within the pre-allocated resources, varying the scope and quality achieved within the timebox, if needed. However, if all the scope is needed to the specified quality, additional time is inevitably needed, so specific features may be scheduled for a subsequent iteration.

Resource smoothing is used when scope and quality are not negotiable, and time is relatively more important than cost. This involves adding resources, for example more people, the same number of people working longer hours, or additional equipment and then trying to get a 'smooth' usage of resources, avoiding peaks and troughs of resource demand. To achieve a smoothed resource profile may require some redefinition of the order of some of the work, where the logic used originally was discretionary not mandatory, for example where work could be done in parallel rather than in sequence. Achieving the optimally resourced schedule can be a creative process requiring multiple iterations to get the best result possible.

There is, of course, a finite limit to the resource that can be put into some tasks due to constraints on physical space, organisation or the time taken for a process to complete. If resource really is finite, there are no more hours available from skilled people or no more equipment available, then there is no option but to extend durations and the overall project time to accommodate this (Figure 4.2.7).

The result of resource optimising, whether involving the critical chain approach or resource levelling or smoothing of a critical path-based schedule, is a curve that shows the planned deployment of resource (and therefore cost) to complete the scope and quality over time. This idea is expanded further in 4.2.8.
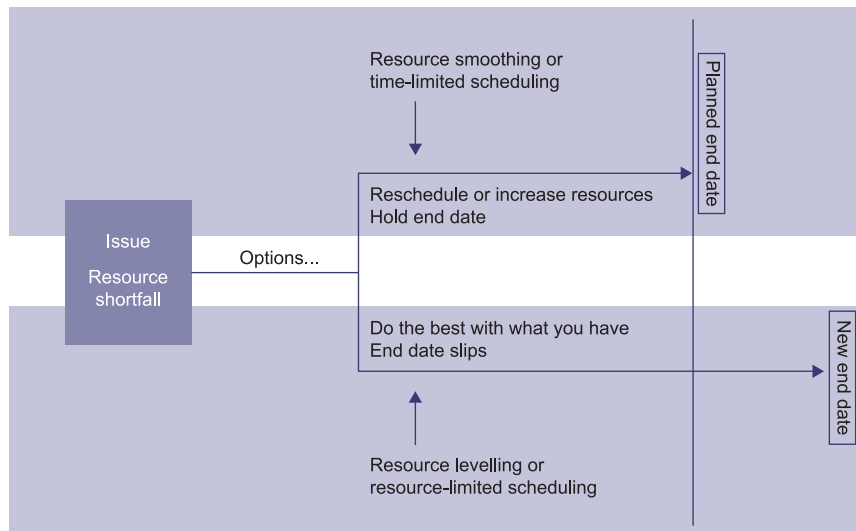
Figure 4.2.7 **Resource levelling and smoothing options**

Recommended reading

■ APM's Planning, Monitoring and Control Specific Interest Group guide *Planning, Scheduling, Monitoring and Control* (2015) explains in detail in section 16.3 how to perform resource levelling and resource smoothing.

■ *Project Management* (2013) covers most aspects of project management, with two chapters dedicated to scheduling resources. Chapter 15 covers the basic principles, explaining resource-limited and time-limited scheduling, whilst chapter 16 offers practical advice on which resources to optimise.

■ *The Handbook of Project-Based Management: Leading Strategic Change in Organizations* (2014) looks at delivering beneficial projects. The chapter on performance also looks at resources, offering alternative views of resource smoothing for a project scheduled by early start and late start, and for smoothing focused on prioritising different types of resources.

■ *The Resource Management and Capacity Planning Handbook* (2014) is a dedicated guide for practitioners. The book begins by exploring the current state of affairs in resource planning, while chapter 3 addresses things that cause havoc with resource efficiency and suggests approaches for dealing with the issues.

Glossary

This glossary is made up of terms used in the seventh edition of the *APM Body of Knowledge* only. Definitions are provided where terms used are unique to the profession, or have a unique meaning in the profession.

Acceptance criteria The requirements and essential conditions that have to be achieved before a deliverable is accepted.

Activity (1). A task, job, operation or process consuming time and possibly other resources. (2). The smallest self-contained unit of work in a project.

Adoption The optional additional phase in a linear life cycle that facilitates the use of project outputs to enable the acceptance and use of benefits.

Agile A family of development methodologies where requirements and solutions are developed iteratively and incrementally throughout the life cycle.

Analogous estimating An estimating technique based on the comparison with, and factoring from, the cost of similar, previous work. Also known as comparative estimating.

Analytical estimating An estimating technique that uses detailed specifications to estimate time and cost for each product or activity. Also known as bottom-up estimating.

Assurance The process of providing confidence to stakeholders that projects, programmes and portfolios will achieve their objectives for beneficial change.

Baseline The reference levels against which a project, programme or portfolio is monitored and controlled.

Benefit A positive and measurable impact of change.

Benefits management The identification, definition, planning, tracking and realisation of benefits.

Benefits realisation The practice of ensuring that benefits are derived from outputs and outcomes.

Bottom-up estimating An estimating technique that uses detailed specifications to estimate time and cost for each product or activity. Also known as analytical estimating.

Breakdown structure A hierarchical structure by which project elements are decomposed. Examples include: cost breakdown structure (CBS), organisational breakdown structure (OBS), product breakdown structure (PBS), and work breakdown structure (WBS).

Buffer A term used in critical chain for the centralised management of schedule contingencies.

Business-as-usual An organisation's normal day-to-day operations. Also referred to as steady-state.

Business case Provides justification for undertaking a project, programme or portfolio. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution.

Business information modelling (BIM) involves the generation and management of digital representations of physical and functional characteristics of buildings and places. Building information models are digital files (often but not always in proprietary formats and containing